SANTA CRUZ BIOTECHNOLOGY, INC.

TNFα (E-4): sc-133193

BACKGROUND

Tumor necrosis factor β (TNFβ), also known as lymphotoxin, is a pleiotropic cytokine. TNFα, also known as cachectin, is a smaller cytokine that binds to the same receptors producing a vast array of effects similar to those of TNFβ. TNFβ and TNFα share 30% amino acid homology and have similar biological activities. TNFβ is produced by activated lymphocytes, including $CD4^+$ T helper cell type 1 lymphocytes, $CD8^+$ lymphocytes and certain B lymphoblastoid cell lines. TNFα is produced by several different cell types, which include lymphocytes, neutrophils and macrophages. TNFα and TNFβ can modulate many immune and inflammatory functions, while having the ability to inhibit tumor growth. Target tumor cells must express TNF receptors 1 and 2 to be killed, with the p55 receptor mediating the cytotoxic response.

REFERENCES

1. Nedwin, G.E., et al. 1985. Human lymphotoxin and TNF genes: structure, homology and chromosomal localization. Nucleic Acids Res. 13: 6361-6373.
2. Aggarwal, B.B., et al. 1985. Human tumor necrosis factor. Production, purification and characterization. J. Biol. Chem. 260: 2345-2354.
3. Vilcek, J. and Lee, T.H. 1991. Tumor necrosis factor. New insights into the molecular mechanisms of its multiple actions. J. Biol. Chem. 266: 7313-7316.
4. Tartaglia, L.A., et al. 1993. Tumor necrosis factor's cytotoxic activity is signaled by the p55 TNF receptor. Cell 73: 213-216.

CHROMOSOMAL LOCATION

Genetic locus: TNF (human) mapping to 6p21.33.

SOURCE

TNFα (E-4) is a mouse monoclonal antibody raised against amino acids 77-233 of TNFα of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

TNFα (E-4) is recommended for detection of TNFα of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for TNFα siRNA (h): sc-37216, TNFα shRNA Plasmid (h): sc-37216-SH and TNFα shRNA (h) Lentiviral Particles: sc-37216-V.

Molecular Weight of transmembrane TNFα: 26 kDa.

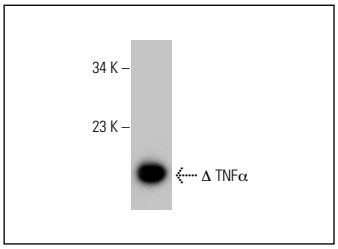
Molecular Weight of soluble TNFα: 17 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

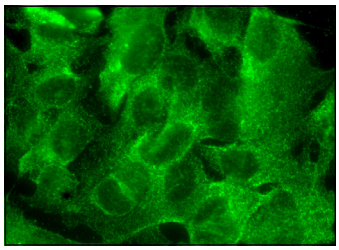
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



TNFα (E-4): sc-133193. Western blot analysis of truncated human recombinant TNFα.



TNFα (E-4): sc-133193. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic and membrane localization.

SELECT PRODUCT CITATIONS

1. Prema, A., et al. 2017. Fenugreek seed powder attenuated aluminum chloride-induced Tau pathology, oxidative stress, and inflammation in a rat model of Alzheimer's disease. J. Alzheimers Dis. 60: S209-S220.
2. Nalamolu, K.R., et al. 2018. Prevention of the severity of post-ischemic inflammation and brain damage by simultaneous knockdown of Toll-like receptors 2 and 4. Neuroscience 373: 82-91.
3. Fan, H., et al. 2019. The *in vitro* and *in vivo* anti-inflammatory effect of osthole, the major natural coumarin from *Cnidium monnieri (L.) Cuss,* via the blocking of the activation of the NFκB and MAPK/p38 pathways. Phytomedicine 58: 152864.
4. Segalés, J., et al. 2020. Sestrin prevents atrophy of disused and aging muscles by integrating anabolic and catabolic signals. Nat. Commun. 11: 189.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

CONJUGATES

See **TNFα (C-4): sc-133192** for TNFα antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.